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Andrew Adam-Bradford

Dr Andrew Adam-Bradford is a humanitarian geographer with over two-decades of practical project management and applied research experience in international development and humanitarian assistance, with a focus on stabilisation agriculture, post-conflict stabilisation, urban environmental management, disaster risk reduction, food security, urban agriculture and the peri-urban interface. He currently works in the Centre for Agroecology, Water and Resilience at Coventry University. ab3805@coventry.ac.uk

Summary

Refugee camps may not seem to be the first location that springs to mind when thinking about agroforestry. This article shows that trees planted in and around refugee camps can provide multiple services that help ease the very difficult lives of the inhabitants, many of whom have already been through distress that most of us can only guess at. Trees really can ease human suffering.

Background

In 2012, in an office located in the cool leafy suburbs of Nairobi, I posed a curious question to the FAO Somalia Food Security Cluster Coordinator: "*Why are you not planting trees in the IDP camps*?"

I had just returned from an assessment of camps and settlements for the internally displaced persons (IDPs) in Mogadishu. In the aftermath of the 2011 drought in Somalia, the capital Mogadishu had received thousands of IDPs who arrived in search of emergency assistance and humanitarian aid. But the conditions that they were now facing, one year on, were still harsh, to say the very least. A small percentage, let us say the fortunate ones, had set up their small nomadic-type shelters in war-torn shells of former government buildings, thus managing to obtain some degree of protection and shade from the sweltering overhead sun. However for the majority of IDPs, life in the urban camps of Mogadishu was bitterly harsh, as it still is for the thousands of Somali refugees living in the Dadaab Refugee Camp on the Kenyan border. In both cases, the flimsy shelters used by the IDPs in Mogadishu and the refugees in Dadaab, constructed from UN plastic sheets, discarded plastic bags, pieces of cardboard and *Prosopis* branches used as support frames, offer little protection from the burning sun and the torrid heat.

However, the simple step of planting a tree next to your shelter can serve a number of benefits, for example providing some of the following: fodder, fruits, nuts, firewood, building poles, nectar for bees, mosquito deterrence, removal of stagnant water. But most importantly it brings shade, which can substantially improve the living conditions for families, particularly for the family members that are vulnerable to the harsh heat, such as new-born babies, young children, the disabled, pregnant women, the sick and the elderly.

In response to my question, the reply from the Food Security Cluster Coordinator, by all accounts a seasoned humanitarian veteran and an expert on Somalia, was an abrupt: "*I don't want to see one tree in any camp*".

Such a response shows a profound level of ignorance about the positive role that trees can play in IDP and refugee camps. Unfortunately, it also shows a remarkable unfamiliarity with what it actually means to live under such harsh conditions. Conditions which thousands of IDPs and refugees face every day, not just in Somalia, but in camps throughout Africa, Asia and the Middle East, and now in Europe.

Such a strong negative reaction begs the question: why the resistance to planting trees in camps? This attitude, a constraint not unique to Somalia, in most cases centres on the issues of 'permanence':

> "*In many countries, local authorities will not concede the permanence of refugee camps but we should not let this distract us from developing 'closing-the-loop' models for refugee camps, where waste becomes the new resource through RRR [resource recovery and reuse]. Even if camps are politically controlled as temporary sites, we can still plant trees, encourage home-gardens and support small-scale food production which will preserve the natural resource base, because host communities also benefit, particularly when the remnants of a long-gone refugee camp become agroforestry*" (Adam-Bradford *et al*, 2016, p48).

In fact, taking our Somali case studies a step further, in both Mogadishu and the Dadaab Refugee Camp, the fact that no trees have been planted, combined with the removal of indigenous trees for fuelwood, the semi-arid conditions, the high numbers of livestock, and a lack of natural controls, has provided the ideal conditions for the aggressively invasive tree *Prosopis juliflora* to thrive in both urban and rural settings. So when you fly into Mogadishu, you cannot help but notice the lush green slopes of the peri-urban dunes; likewise, when you fly over the Dadaab Camp, the largest refugee camp in the world, the green forests around the enormous blocks of sprawling refugee shelters give a false perspective. This is because the lush green trees are in fact a thorny menace for the camp residents, and in both cases the tree is wholly unsuitable as a shade and camp tree, due to its noxious pollen, and once established it gives little chance for other vegetation to grow. So in these cases of 'refugee camp management', preventing tree planting may actually contribute to tree growth but from an invasive and highly inappropriate species. This replaces the 'permanence' issue with an 'ecological' problem, which for sure will still be negatively impacting on local ecosystems once the remnants of any refugee camp have long-gone.

Why agroforestry in refugee camps makes sense

Many of the benefits of agroforestry are clear and some have already been identified. However, agroforestry should also be considered at the landscape level, as designing and planning appropriate agroforestry-based interventions can 'check' and 'reverse' the high levels of land degradation and soil erosion that are often associated with refugee camps. In addition, agroforestry also has a clear role to play in social protection and energy conservation programmes. For example, growing firewood closer to camps reduces the distances that children and young women have to walk when collecting firewood thus reducing the risk of attack and gender-based violence. Also replanting denuded areas with fast-growing tree species for energy use reduces the firewood burden that contributes to the over-exploitation of local natural resources. This reduces the risks from invasive species which often thrive in deforested landscapes due to the lack of ecological competition.

Camp experiences in Rwanda and Uganda

In Rwanda, the project *Conservation and restoration of the degraded environment surrounding Nyamure Refugee Camp* has adopted agroforestry as a means of reversing the environmental degradation associated with fuel-driven deforestation. As the availability of fuelwood dwindled, local farmers switched to the use of crop residues for energy, which in turn reduced soil fertility due to a lack of organic matter in the soils (Nduwamungu & Munyanziza, 2012). To reverse this cycle of degradation, agroforestry has been promoted in the form of public woodlands and forests that are implemented through community managed regimes. Furthermore, due to the acute land shortages, a problem not just in Rwanda but also common in many high density refugee areas, Nduwamungu & Munyanziza (2012 p74), have recommended that *"efforts should be directed towards promoting agroforestry, high yielding crops and efficient agricultural technologies"*.

Over the border in Uganda, agroforestry is also being used in the Nakivale Refugee Settlement. Here agroforestry is being promoted as an energy source for fuelwood, but more importantly also to reduce soil erosion from the rain-fed agricultural systems, particularly on sloping farmlands where the runoff risks causing sedimentation of Lake Nakivale. It is worth noting that, in Uganda, growing food in refugee settlements has been adopted as official policy as part of the solution to addressing food insecurity. Consequently, refugee camps are designed around a low-density village model so that sufficient space is available for each refugee family to be allocated a plot for building a shelter and planting a home-garden, along with a second plot located outside the village for rain-fed farming (Figure 1).

Despite the government support for food production in refugee camps, the farmers still face a number of challenges, such as the dependency on seasonal rainfall for crop production, and the limited availability of extension services to help farmers

Figure 1. Preparing the fields for rain-fed agriculture in Nakivale Refugee Settlement; agroforestry can reduce land degradation and soil erosion from such practices.

increase their farm productivity through environmentally friendly farming practices. In all these situations, agroforestry has a clear role to play, for example as a crop diversification strategy, for improved nutrient and water retention, increased soil protection and of course improved availability of fuelwood. Even at the homesteads, the biodiversity of home-gardens can be improved by a wider selection of tree-based crops such as pawpaw, passion fruit, mango and avocado, as well as *matoke* (plantain) and banana. In Nakivale, agroforestry also has the potential to play a key role in the protection of water resources such as the adjacent Lake Nakivale, particularly as agroforestry-based buffer zones around the lake can enhance the productivity of the land-water interface, while preventing the sedimentation of the lake through the use of contour planting on bunds and swales for runoff capture, retention and infiltration.

Camp experiences in Iraq and Jordan

In the many IDP and refugee camps of north Iraq, tree planting is occurring, but not on a scale that brings the full benefits associated with a well-designed agroforestry approach. For example, in Domiz Refugee Camp, near Dohuk, trees are being planted, much aided by two inspirational figures. The first one is Sami, a refugee from Syria, who has brought a whole new meaning to 'biodiversity' in a refugee camp. Before the war, Sami worked in Damascus as an expert in agronomy, biotechnology and biodiversity conservation. Now, he lives in Domiz and lectures at the nearby University of Dohuk, while also conducting research in Irano-Turanian flora, the ethnobotany of the Kurdish people, and the ethno-domestication of wild edible plants. His small home-garden, bustling with rare mountain orchids, is testimony to his work collecting, cataloguing and publishing on local flora. And if all that was not enough, Sami has also been the driving force behind planting over 2,000 trees in Domiz Refugee Camp (Adam-Bradford *et al*, 2016).

Another inspirational example in Domiz is Sayed, the founder of a plant nursery along the main camp high street, selling seeds, ornamental flowers, shrubs and tree seedlings. In early 2016, with NGO support from the *Lemon Tree Trust*, Sayed had

upgraded his homemade plastic seedling tent into a full-sized greenhouse which has enabled him to increase the production of his nursery. This in turn has increased the availability of plants and tree seedlings so that camp residents can purchase products for their own home-gardens. In Domiz, tree distributions have also been conducted by the *Lemon Tree Trust* (over 400 lemon trees have been distributed), and the French Red Cross is now distributing trees as a component of its water, sanitation and hygiene (WASH) programme, thus maintaining the home grown tree planting momentum of Domiz Refugee Camp (Figure 2).

Figure 2. Staff from the French Red Cross in Domiz Refugee Camp preparing trees for distribution.

Unfortunately, in Jordan, the misguided government policies on what can be planted in refugee camps are far more restrictive than those in neighbouring Iraq. For example, in the bleak semi-arid conditions of the Azraq Refugee Camp in northern Jordan, an attempt has been made to develop an ornamental park with a useful number of trees, but unfortunately it has been planted in an isolated area within the camp. As the park is located a fair walking distance from the residential blocks, and is also secured behind a chain fence and a locked gate, the likely benefits for refugees will be minimum. In 2014, during an 'agroforestry feasibility study' in Azraq Refugee Camp, a staff member from the camp management made an interesting comment: they recalled that during the planting of the park, some of the refugees had 'stolen' the newly planted tree seedlings and replanted them around their housing units. Of course, in this context, the use of the term 'stolen' is a rather unfortunate one – they should rather have used 'relocated' – since the provision of tree seedlings to improve the immediate living areas of the refugees should have been the priority before the 'greening' of the communal areas. Such lost opportunities show a clear lack of vision, as well as little understanding of how plants and trees can provide direct benefits for refugees, particularly those refugees who have been traumatised by war, such as those from neighbouring Syria. They would particularly benefit from engaging in agroforestry and its related activities, especially when delivered in the form of a social and therapeutic horticulture intervention.

Closing remarks

Agroforestry can bring multiple benefits to refugee camps. At the landscape level, agroforestry can transform bleak desolate refugee camps into productive landscapes, reducing the urban heat-island effect in hot arid conditions and providing shelterbelts that reduce the wind chill factor in bitterly cold climates. Agroforestry can also contribute to environmental sanitation in refugee camps, through greywater irrigation, reducing stagnant surface waters and muddy quagmires, and utilising the organic solid waste through composting initiatives. Agroforestry can contribute to the environmental protection of camps through slope stabilisation and providing protection to low-lying flood prone areas. Agroforestry also provides an energy supply, in addition to its multiple other outputs that can directly contribute to food security and shelter construction. Agroforestry can also be designed as a form of social and therapeutic horticulture, and when applied in areas facing acute firewood shortages, has the means of reducing the risk for vulnerable children and young women from attacks and gender-based violence by reducing the distances they have to walk in their daily search for firewood.

With all these potential benefits in mind, we should not want to see one camp without agroforestry, never mind one camp without a tree.

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